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10/719,915

11/20/2003

Richard Root Woods

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EXAMINER

SMITH, NICHOLAS A

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

07/10/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/719,915

**Applicant(s)**

WOODS ET AL.

**Examiner**

Nicholas A. Smith

**Art Unit**

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 15, 17, 19-27 and 39-42 is/are pending in the application.
- 4a) Of the above claim(s) 39-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 15, 17, 19-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Election/Restrictions***

Newly submitted claims 39-42 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claims 39-42 are a gas generating cylinder, not the invention of a gas generating system as originally presented. For instance, the gas generating system includes connections to an electrical power source and the original claims are drawn to a combination. The gas generating cylinder, the subcombination, does not have to be used with an electrical power source and can be used for other purposes such as in combination with an internal combustion engine or can be used to generate water with oxygen by catalytic combustion.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 39-42 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

**Status of Claims**

1. Claims 1-8, 15, 17 and 19-27 remain for examination. Claims 9-14, 16, 18 and 28-38 have been cancelled.

***Claim Objections***

2. Claims 2-8, 15, 17 and 19-27 are objected to because of the following informalities: the phrase "the invention" should be "the hydrogen gas generating

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system" as claimed in independent claim 1. Furthermore, claim 8 should read "released gases" instead of "released cases." For the purpose of examination, it will be interpreted as "gases." Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 15, 17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lillis et al. (US 2003/0215680) in view of Kinkelaar et al. (US 2004/0001991 A1).

5. In regards to claim 1, Lillis et al. discloses a hydrogen gas generating system, a membrane electrode assembly including an anode, a cathode and an ionically conductive membrane, and electrical connections (abstract, paragraphs [0031] and [0032]).

6. However, Lillis et al. does not specifically disclose a non-circulating fuel transport system using capillary action.

7. Kinkelaar et al. teaches wicking strands that transport water by capillary action for a fuel cell (paragraphs [0019]-[0020], Figure 1). Kinkelaar et al. further discloses a fuel transport system with a first and second portion in which a second portion can act as a barrier to gases being released through a vent (paragraphs [0019], [0020] and

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[0034]). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Lillis et al.'s system with Kinkelaar et al.'s fuel transport system in order to controllably communicate liquid water and fuel to the anode (Kinkelaar et al., paragraph [0014]).

8. In regards to claims 2-7, Kinkelaar et al. teaches the specifics characteristics of the claimed fuel transport system, including a first and second portion that are hydrophilic (fuel capillary action) and hydrophobic (capable of transporting gases) and connected to fuel/water sources and so connected between first and second portions, wherein hydrophilic portion has smaller pore size and higher capillary force (paragraphs [0019], [0020] and [0034]). Kinkelaar et al. discloses interspersed portions and second portion acts a barrier to fuel/water mixture (paragraph [0034]).

9. In regards to claim 8, Lillis et al. discloses the conventional component in the claims, including replaceable fuel water canister (Figs. 1 and 9, paragraphs [0030], [0050], [0056], [0064]-[0069]). Furthermore, Lillis et al. discloses a compartment capable of pressurizing a replaceable fuel/water mixture canister (paragraph [0068]) and capable of receiving released gases (i.e., atmosphere containing CO<sub>2</sub> released from process).

10. In regards to claims 15, 17, 19-20, Lillis et al. discloses the conventional components in the claims, including replaceable fuel water canister, hydrogen gas storage tank, forward regulator to deliver hydrogen gas, backpressure regulator, vent regulator, electrical connections (Figs. 1 and 9, paragraphs [0030], [0050], [0056]). Furthermore, the regulators are capable of the claimed operations.

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11. Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lillis et al. in view of Kinkelaar et al. and further in view of Pien et al.

(US2002/0110719).

12. In regards to claim(s) 21-27, Lillis et al. in view of Kinkelaar et al. does not specifically disclose a cooling system with cooling ports.

13. Pien et al. teaches a cooling system with cooling ports (paragraphs [0015] and [0030]). It would have been obvious to one of ordinary skill in the art to modify Lillis et al. in view of Kinkelaar et al.'s apparatus with Pien et al.'s cooling system and cooling ports in order to distribute cooling fluid and cool the fuel cell (Pien et al. paragraph [0015]). Please note that Pien et al.'s cooling ports and system are coupled to the membrane electrode assembly (Pien et al., paragraph [0015]). Furthermore, Lillis et al. in view of Kinkelaar et al. and further in view of Pien et al.'s system is capable of the claimed fuel transport configurations as claimed and is also formed in a stack configuration.

### ***Response to Arguments***

14. Applicant's arguments filed 24 April 2007 have been fully considered but they are not persuasive. In regards to Applicant's arguments due to amendment of claims, please see reasons stated above in regard to new rejection ground. In regards to Applicant's arguments towards the cooling system, please see reasons stated above in paragraphs 12-13.

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### Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ren et al. (US 20040062980 A1) discloses a fuel/water delivery system using capillary action.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

17. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on (571)-272-1293. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NAS

*Amy Isenhardt*  
Supervisory Patent Examiner